Bagdasaryan, Zh. A.

PHASE I BOOK EXPLOITATION SOV/3913

Akademiya nauk SSSR. Institut mashinovedeniya. Komissiya po tekhnologii mashinostroyeniya

Osnovnyye voprosy vysokoproizvoditel'nogo shlifovaniya (Basic Problems in High-Productivity Grinding) Moscow, Mashgiz, 1960. 195 p. 3,000 copies printed.

Ed. (title page): Ye. N. Maslov, Doctor of Technical Sciences, Professor; Ed. (Inside book): A. T. Popov, Engineer; Tech. Ed.: V. D. [illegible]; Managing Ed. for Literature on Metalworking and Instrument Construction (Mashgiz): V. V. Rzhavinskiy, Engineer.

PURPOSE: This book is intended for technical personnel in metal grinding.

COVERAGE: This collection of articles deals with problems of efficient grinding of metals, the theory of grinding, the mechanism of the cutting action of grains, chip formation, and the effect of certain factors on the productivity of the grinding process. Emphasis is also given to the automation of the grinding process. A number of articles deal with the [illegible]. No personalities are mentioned.

Sil'vestrov, V. D. [Candidate of Technical Sciences] Characteristic Features of the Grinding of Titanium Alloys 153

The author indicates the basic cause of low productivity in the grinding of titanium alloys. He attributes low productivity to the chemical affinity of titanium alloys to the materials of the grinding wheel and the resulting excessive wear of the wheel. To increase productivity [20-25 times], he recommends the use of special grinding coolants. The compositions of the coolants proposed are presented.

Bagdasaryan, Zh. A. [Candidate of Technical Sciences]. Cutting Action of Grinding Wheels and [Mechanical] Work in Grinding 161

The results of experimental work by the author are presented. The work is based on a study of metal and abrasive waste products in grinding. The effect of truing and dressing on wheel wear is determined, and the coefficient ε is derived. This coefficient characterizes the reduction of average grain dimensions in waste as compared with original grain dimensions. An analysis of mechanical work (force × relative displacement of work and wheel surface) during grinding is also presented.

Chastnov, A. L. [Candidate of Technical Sciences]. Finishing of Sliding Surfaces 171

The author discusses the regularities of the microfinishing process, a microfinishing attachment for a lathe, and the effect of finishing of a journal on the wear of the bushing.

Makhkamov, R. G. Some Problems of Flexible Grinding and Buffing With Felt Wheels 189

The author describes an experimental investigation of flexible grinding with felt wheels with bonded abrasive powder. The composition of a paste for buffing is also described (73% chromium oxide, 23% stearin, and 4% oleic acid).

AVAILABLE: Library of Congress

Card 6/6

VK/pw/ec
8-26-60

10 0000 2807

11,2312 also 3115, 2807

S/022/60/013/005/003/008
C111/C222

AUTHORS: Bagdasaryan, Zh.Ye., and Gnuni, V.Ts.

TITLE: On the Theory of the Dynamic Stability of Laminated Anisotropic Shells of Revolution

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya fiziko-matematicheskikh nauk, 1960, Vol. 13, No. 5, pp. 27 - 36

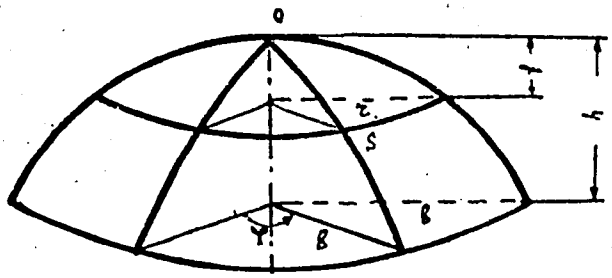
TEXT: The authors consider the axialsymmetric problem of the nonlinear dynamic stability of a laminated orthotropic flat shell of revolution with a closed cupola (fig. 1). The shell consists of an odd number of homogeneous orthotropic layers lying symmetrical with respect to the middle surface of the shell. One of the planes of the elastical symmetry of each layer is parallel to the middle surface, the two others are perpendicular to the meridian surfaces and parallel circles. It is assumed that the Kirchhoff- Love's hypothesis is correct for the totality of the shell.

Card 1/ 7

S/022/60/013/005/003/008
C111/C222

On the Theory of the Dynamic Stability of Laminated Anisotropic Shells of Revolution

Fig. 1.



Фиг. 1.

The authors obtain the equations of the dynamic stability

Card 2/ 7

On the Theory of the Dynamic Stability of Laminated Anisotropic Shells of Revolution

$$a_{11}r^2\frac{\partial^2\varphi}{\partial r^2}+a_{11}r\frac{\partial\varphi}{\partial r}-a_{22}\varphi-r\frac{\partial f}{\partial r}\frac{\partial w}{\partial r}-\frac{r}{2}\left(\frac{\partial w}{\partial r}\right)^2=0,$$

$$D_{11}r\frac{\partial^3 w}{\partial r^3}+D_{11}\frac{\partial^2 w}{\partial r^2}-D_{22}\frac{1}{r}\frac{\partial w}{\partial r}+\frac{\partial}{\partial r}(w+f)\cdot\varphi+ \qquad (1.13)$$

(1.13)

$$+\int_0^r\left(m^*\frac{\partial^2 w}{\partial t^2}+T_1^0\frac{\partial^2 w}{\partial r^2}+T_2^0\frac{1}{r}\frac{\partial w}{\partial r}\right)rdr=0.$$

where

$$a_{11}=\frac{C_{11}}{\Omega},\quad a_{22}=\frac{C_{22}}{\Omega},\quad \Omega=C_{11}C_{22}-C_{12}^2$$

$$C_{jk}=2\left[B_{jk}^{n+1}\delta_{n+1}+\sum_{i=1}^{n}B_{jk}^{i}(\delta_i-\delta_{i+1})\right],$$

(1.6)

$$D_{jk}=\frac{2}{3}\left[B_{jk}^{n+1}\delta_{n+1}^3+\sum_{i=1}^{n}B_{jk}^{i}(\delta_i^3-\delta_{i+1}^3)\right],$$

Card 3/7

On the Theory of the Dynamic Stability of Laminated Anisotropic Shells of Revolution

$$B_{11}^i = \frac{E_1^i}{1 - \mu_1^i \mu_2^i}, \quad B_{22}^i = \frac{E_2^i}{1 - \mu_1^i \mu_2^i},$$

(1.7)

$$B_{12}^i = \frac{\mu_1^i E_2^i}{1 - \mu_1^i \mu_2^i} = \frac{\mu_2^i E_1^i}{1 - \mu_1^i \mu_2^i}, \quad B_{66}^i = G_{12}^i$$

(1.4) $$m^* = \frac{2}{g}\left[\gamma_{n+1}\delta_{n+1} + \sum_{i=1}^{n} \gamma_i(\delta_i - \delta_{i+1})\right].$$

Here γ_i is the specific weight of the i-th layer, δ_i is the distance of the i-th layer from the middle surface of the shell; furthermore according to (Ref. 5), instead of the external charge P acting normally to the middle surface, the authors substitute the expression

Card 4/7

On the Theory of the Dynamic Stability of Laminated Anisotropic Shells of Revolution

(1.12) $$- T_1^o \frac{\partial^2 w}{\partial r^2} - T_2^o \frac{1}{r} \frac{\partial w}{\partial r} \quad .$$

φ is determined from the first equation (1.13) under consideration of the clamping conditions; then the second equation is solved according to the method of Bubnov - Galerkin. The calculation is carried out for a flat spherical shell, where according to (Ref. 3) it holds

(3.1) $$f(r) = h\left(\frac{r}{b}\right)^2 \quad ,$$

and for a conic shell with

(4.1) $$f(r) = \frac{h}{b} r \quad .$$

Here it is assumed that $p = p_o + p_t \cos \Theta t$. In the spherical case, for the nonlinear eigenfrequency ω_n and the kinetic pressure p_{kr}^n the authors give the values

On the Theory of the Dynamic Stability of Laminated Anisotropic Shells of Revolution

(3.9) $$\omega_n^2 = \omega^2 + lW_o + dW_o^2$$

(3.10) $$p_{kr}^n = p_{kr}\left(1 + \frac{1}{\omega^2} W_o + \frac{d}{\omega^2} W_o^2\right)$$

where ω is the linear eigenfrequency, p_{kr} is the critical pressure for a static action, l and d are constants depending on the clamping conditions, while for $W_o = \frac{1}{b^4} w(0,t)$ a nonlinear equation of second order with with variable coefficients is given. In the case of resonant vibrations it holds

(5.4) $$W_o = C \cdot \cos\left[\left(\Omega + \frac{\varepsilon}{2}\right)t + \gamma\right],$$

where C is the amplitude, γ is the phase shift.

Card 6/7

S/022/60/013/005/003/008
C111/C222

On the Theory of the Dynamic Stability of Laminated Anisotropic Shells of Revolution

There are 2 figures and 6 Soviet references.

[Abstracter's note : (Ref. 5) concerns V.V. Bolotin, Dynamic Stability of Elastic Systems, 1956]

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute of Mathematics and Mechanics of the Academy of Sciences Armyanskaya SSR)

SUBMITTED: April 7, 1960

Card 7/7

29067
S/179/61/000/004/011/019
E081/E335

10-6300

AUTHORS: Ambartsumyan, S.A. and Bagdasaryan, Zh. Ye. (Yerevan)

TITLE: The stability of orthotropic plates in a supersonic gas current

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Mekhanika i masinostroyeniye. no. 4, 1961, pp. 91 - 96

TEXT: The paper is a continuation of previous work (Ref. 1 - Izv. AN SSSR. OTN, 1958, no. 5; Ref. 2 - PMM, 1960, v. 24, no. 2; Ref. 8 - Izv. AN SSSR, OTN, 1960, no. 1). The problem is formulated in rectangular coordinates α, β and γ, such that the α and β directions coincide with the sides of the plate. The thickness of the plate h is constant. One plane of elastic symmetry is parallel to the middle surface of the plate and the other two planes of symmetry are parallel with the sides. A supersonic gas current of velocity u flows over one side of the plate in the α direction. It is assumed that: 1) the normal displacements in the direction of the plate thickness are invariable; 2) the shear stresses $\tau_{\alpha\gamma}$ and $\tau_{\beta\gamma}$

Card 1/3

The stability of ....

have the form:

$$\tau_{\alpha\gamma} = f(\gamma)\varphi(\alpha,\beta), \quad \tau_{\beta\gamma} = f(\gamma)\psi(\alpha,\beta) \qquad (1.1)$$

where $\varphi(\alpha,\beta)$ and $\psi(\alpha,\beta)$ are initial functions, and $f(\gamma)$ is a function characterising the law of change of shear stress in the thickness direction, subject to the condition $f(\pm h/2) = 0$; 3) that the normal stress σ_γ is negligibly small compared with the remaining stresses; 4) the excess pressure due to the flowing gas is given by the piston theory; 5) only those nonlinear terms are retained which are connected with the normal displacement w . On the above basis, the nonlinear differential equations for the motion of the plate are established in terms of the elastic constants, the deflection w , the stress function and the functions characterising transverse shear. These equations are solved approximately by a variational method for a plate having all its edges simply supported and subjected to normal forces p_α p_β acting in

Card 2/3

The stability of ....

its plane. The critical velocity for panel flutter is derived from the solution. Calculations of the amplitude are carried out for a plate having $a = b = 3.1416$ m , $p_\alpha = p_\beta = 0$, a ratio of damping coefficient to natural frequency of 0.025 and a coefficient of polytropy of 1.4 . The results of the calculation are shown graphically and the curve is compared with the one obtained from the classical theory. It is found that the critical flutter speed is lower when transverse shear is taken into account.
There are 3 figures, 1 table and 8 Soviet-bloc references.

ASSOCIATION: Institut matematiki i mekhaniki AN ArmSSR (Institute of Mathematics and Mechanics of the AS ArmSSR)

SUBMITTED: April 24, 1961

Card 3/3

10 1210

31076
S/179/61/000/005/013/022
E081/E477

AUTHORS: Ambartsumyan, S.A., Bagdasaryan, Zh.Ye. (Yerevan)

TITLE: The stability of nonlinearly elastic three-ply plates in a supersonic gas stream

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Mekhanika i mashinostroyeniye. no.5, 1961, 96-99

TEXT: The paper is a continuation of previous examinations of the subject (Ref.4: Ambartsumyan, S.A. Izv. AN SSSR, OTN, 1960, no.6) and deals with the stability of rectangular three-ply plates which are subject to a supersonic gas stream at zero angle of attack. Surplus gas pressure is estered for approximately by the "piston theory" (Ref.3: Chernyy G.G. Flow of gas with a high supersonic speed. Fizmatgiz, 1959). The plates are symmetrical. The following are assumed:
1. The hypothesis of undeformed normals applies to the complete specimen of layers as a whole.
2. The material of each layer of the plate is incompressible.
3. The tensor stress and strain components in each layer coincide.

Card 1/3

The stability of nonlinearly ...

4. The nonlinear relation between the stress components T_i and the strain components E_i is

$$T_i = a_i E_i - b_i E_i^{mi}$$

where i is the number of layers; a_i, b_i and m_i are constants determined from simple tests of the material of the layers in tension and compression.
On the basis of these assumptions, the basic differential equation for the movement of the plate is quoted and reduced to a system of ordinary differential equations by applying the Bubnov-Galerkin method. As an example, a hinge supported endless strip is examined and it is shown that the amplitude of steady flutter vibrations may be determined by a velocity parameter V, and a parameter Q, which depends on the properties and construction of the plate. It is shown that there is a critical value of V below which, when Q is larger than zero, the amplitude decreases with an increase of V. Above this value, when Q is smaller than zero, the amplitude increases with increasing V. There are

Card 2/3

4 figures and 6 references: 5 Soviet-bloc and 1 non-Soviet-bloc. The reference to an English language publication reads as follows: Ref.6: Prager W. On ideal locking materials. Trans. Soc. Rheology, 1957, 1.

ASSOCIATION: Institut matematiki i mekhaniki AN ArmSSR
(Institute of Mathematics and Mechanics
AS Armenian SSR)

SUBMITTED: April 24, 1961

X

33528
S/022/61/014/005/002/007
D237/D301

10 6300 1327

AUTHOR: Bagdasaryan, Zh. Ye.

TITLE: On the stability of a three-layer orthotropic plate in a supersonic gas flow

PERIODICAL: Akademiya nauk Armyanskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, v. 14, no. 5, 1961, 21-30

TEXT: The author attempts to solve the problem of non-linear flutter of three-layer rectangular plates, streamlined by a supersonic gas stream with a zero angle of attack. The layers are symmetrical w.r. to the neutral plane and the materials obey a generalized Hook's law. Assumptions were made of the non-deformability of normals for outer layers and hypotheses of S. A. Ambartzumyan (Ref.2: PMM, no. 5, 1958) were accepted as true for the inner layer. Also, normal displacements were assumed to be comparable with the thickness of the plate. A system of non-linear differential equations was given together with the expression for a transverse load, and boundary conditions. An approximate solution was assumed to be

Card 1/4

On the stability of ...

trigonometric and, on substitution, the original equations were shown to reduce to a non-linear system of two equations in dimensionless variables, for the case of one-sided streamlining which simplifies for the case of two-sided streamlining with different stream velocities. A corresponding linear system possesses an exponential solution and critical value of $\mu = \mu_+$, where $\mu = \frac{M^{h_1}}{a}$ where h_1 = thickness of the plate, a = length of the plate. M = Mach no. was given as

$$\mu_+ = \frac{3}{4}\frac{\gamma^2 - 1}{K}\sqrt{1 + \frac{2(\gamma^2 + 1)\lambda^2}{(\gamma^2 - 1)^2}} \qquad (3.16)$$

where λ and γ are non-dimensional coefficients, and K is a constant and corresponded to a critical velocity of the flutter of the

On the stability of ...

plate in the linear problem. The periodic solution near the critical value was sought by the method of successive approximations and the amplitude and frequency of established flutter vibrations were found by the Bubnov-Galerkin method. The amplitude of second approximation was also obtained, and from it the author deduced that the character of the motion near the critical μ value depends on the behavior of the first approximation amplitude. Two possible cases were discussed and a numerical example was given. The conclusions reached were that critical flutter velocity found by the above method is significantly smaller than that found from the classical theory, and that the difference between two values increases with the value of h_1/a. There are 4 figures and 16 references: 14 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: H. Ashley and C. Zartarian, Piston theory - a new aerodynamic tool for the aeroelastician. J. Aeron. Sci. vo. 23, no. 6, 1956; E. Reissner, Small bending and stretching of sandwich-type shells. NACA Report no. 975, 1950.

Card 3/4

33528

On the stability of ... S/022/61/014/005/002/007
D237/D301

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute of Mathematics and Mechanics AS Armyanska-ya, SSSR)

SUBMITTED: April 11, 1961

Card 4/4

BAGDASARYAN, Zh.Ye.

Stability of an anisotropic cylindrical shell in a supersonic gas flow. Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 15 no.6:3-10 '62. (MIRA 16:6)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR.
(Elastic plates and shells) (Gas flow)

S/879/62/000/000/039/088
D234/D308

AUTHORS: Ambartsumyan, S. A., Bagdasaryan, Zh. Ye. and Gnuni, V. Ts. (Yerevan)

TITLE: Some dynamical problems of anisotropic three-layer shells

SOURCE: Teoriya plastin i obolochek; trudy II Vsesoyuznoy konferentsii, L'vov, 15-21 sentyabrya 1961 g. Kiev, Izd-vo AN USSR, 1962, 254-259

TEXT: The authors consider a thin shell whose layers are uniform, orthotropic and symmetrical with respect to the middle surface. The material of each layer obeys the generalized Hooke's law. Normal displacements are assumed to be comparable with the thickness and not to vary along the thickness. The complete system of differential equations in terms of 5 unknown functions is formulated; it is essentially simplified if the effect of normal stress is neglected. This system can be applied to problems of nonlinear dynamical stability or aeroelasticity if appropriate substitutions are made.

Card 1/1

BAGDASARYAN, Zh.Ye.

Stability of orthotropic shallow shells in a supersonic gas flow. Izv.AN SSSR.Otd.tekh.nauk.Mekh.i mashinostr. no.1:92-98 Ja-F '63. (MIRA 16:2)
(Elastic plates and shells)
(Aerodynamics, Supersonic)

BAGDASARYAN, Zh.Ye.; GNUNI, V. Ts. (Yerevan)

"Some problems of dynamics of anisotropic - non-orthotropis - plates and shells"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964

ACCESSION NR: AT4039426 S/2879/64/000/000/0211/0218

AUTHOR: Bagdasaryan, Zh.Ye. (Yerevan)

TITLE: Stability of an orthotropic cylindrical shell in a flow of gas

SOURCE: Vsesoyuznaya konferentsiya po teorii obolochek i plastin, 4th, Yerevan, 1962. Teoriya obolochek i plastin (Theory of Shells and Plates); trudy* konferentsii, 1964, 211-218

TOPIC TAGS: shell, cylindrical shell, supersonic gas flow, laminated shell, multilayer shell, orthotropic cylindrical shell, shell stability, shell buckling, gas flow, shell flutter, flutter velocity

ABSTRACT: The buckling of a thin cylindrical shell, consisting of an uneven number of homogeneous anisotropic layers is investigated. The layers, arranged symmetrically with respect to the middle surface of the shell, are of identical thickness and identical physicomechanical properties. It is assumed that the material of each layer of the shell obeys the generalized Hook law and that at each point there are three planes of elastic symmetry, the principal directions

Card 1/4

ACCESSION NR: AT4039426

of which coincide with the directions of the orthogonal coordinate axes. It is further assumed that the deformation of all layers is elastic and there is no slippage between layers. The shell is in a supersonic stream of gas parallel to the shell generatrix. The hypothesis of preservation of normals is assumed for the whole pack. By using equations of motion and the elasticity and geometry relationships, a system of differential equations of motion of the shell is obtained, from which an equation for the flutter stability of a cylindrical steel in a supersonic gas flow is derived. The effect of anisotropy and heterogeneity on the flutter velocity is determined through the use of the Bubnov-Galerkin variational method.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 02 SUB CODE: AS, ME

NO REF SOV: 005 OTHER: 000

Card 2/4

ACCESSION NR: AT4039426

ENCLOSURE: 01

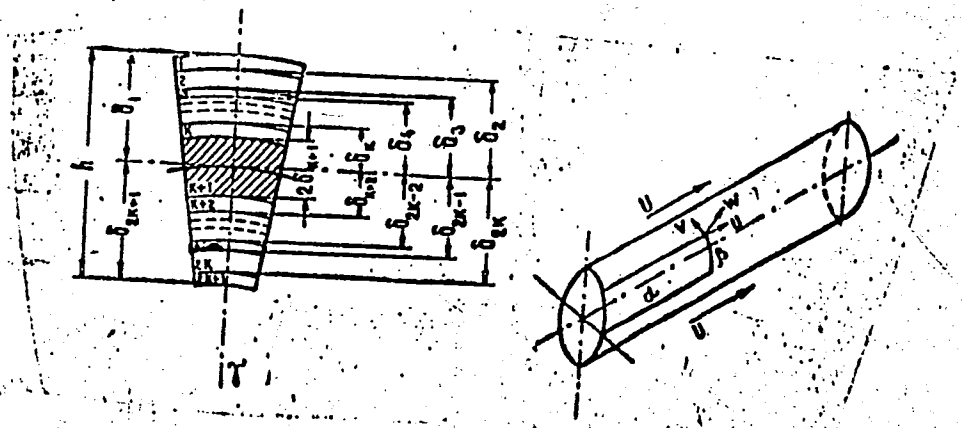


Fig. 1

Card 3/4

ACCESSION NR: AT4039426

ENCLOSURE: 02

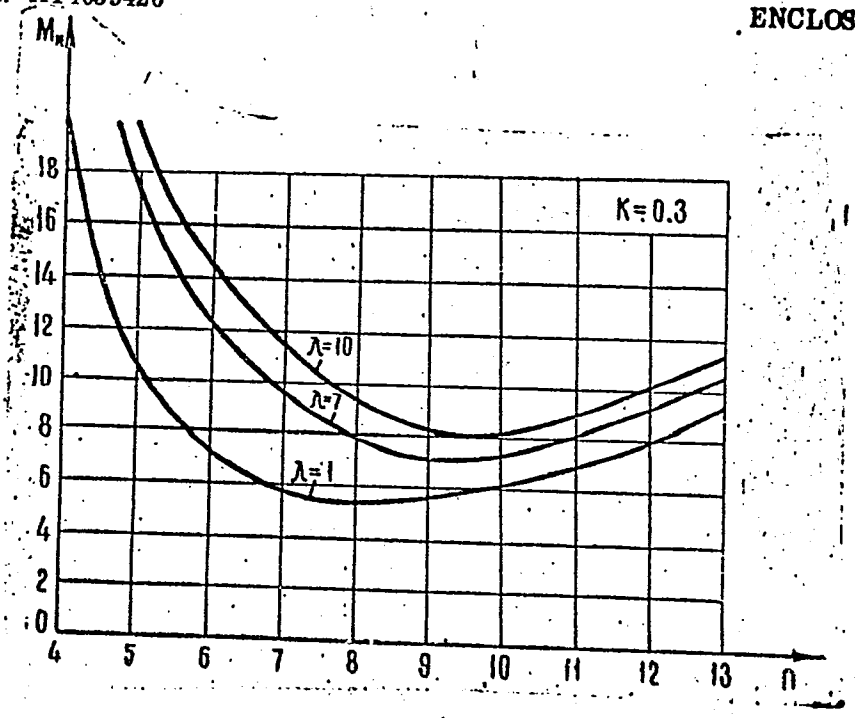


Fig. 2.

Card 4/4

BAGDASHKIN, Kh.R.

Revision of standards for safe distance of structures from gas pipelines; a discussion. Gaz.prom. no.11:28-29 N '58.
(Gas, Natural--Pipelines) (MIRA 11:11)

BELYAYEV, L.M.; DOBRZHANSKIY, G.F.; BAGDASSAROV, Kh.S.

Some changes in the method of growing crystals from a melt.
Rost krist. 4:89-91 '64. (MIRA 17:8)

BAZILEVSKIY, M.V.; BAGDASAR'YAN, Kh.S.

Quantitative investigation of radical reactivity by the method of competing reactions. Reactions of a phenyl radical with phenol, aniline, and anisole. Kin. i kat. 5 no.2:215-220 Mr-Ap '64. (MIRA 17:8)

1. Fiziko-khimicheskiy institut imeni I.Ya. Karpova, Moskva.

BAGDAT'YAN, M.G.

Certain problem in application of the Pavlovian theory in internal diseases. Fel'dsher & akush. no.10:7-13 Oct 1953. (CLML 25:4)

1. Professor. 2. Moscow.

BAGDAT'YAN, M.G., professor

Formidable enemy. Zdorov'e 3 no.3:25-26 Mr '57 (MLRA 10:25-26)
(RHEUMATIC FEVER)

BAGDAT'YEV, R. G. Engr.

"New Method for Making Twist Drills of 3-8 Millimeter Diameter," Stanki i Instrument, 14, No.4/5, 1943

BAGDAT'YEV, R. [G.] Sep 52

USSR/Metallurgy - Metal-Cutting, Tools

"Twist Drills," Bagdat'yev, Stalin Prize Laureate

Za Ekon Materialov, No 2, pp 71-74

Suggests a new method for fabricating drills by shape-rolling rods of cold-drawn calibrated steel with subsequent twisting of grooves, thus eliminating waste of valuable metal which takes place in fluting by milling. Discusses technology, stating that drills made by new method are of superior quality because strongest surface layer of steel remains intact, while in forming flutes by milling this layer is cut, weakening entire tool.

Source #264T63

SERGOVSKIY, Pavel Semenovich; STERLIN, L.M. kand. tekhn. nauk; BAGDAT'YEV, Ye.Ye., inzh.; SAKHNOVSKIY, Leonid Vladimirovich, dots., kand. tekhn. nauk; SOKOLOV, P.V., red.

[Equipment for the hydrothermal processing of wood] Oborudovanie gidrotermicheskoi obrabotki drevesiny. Moskva, Lesnaia promyshl., 1964. 326 p. (MIRA 18:1)

1. Kafedra lesopil'no-strogal'nykh proizvodstv Leningradskoy lesotekhnicheskoy akademii im. Kirova (for Sakhnovskiy).

SOKOLOV, P.V.; BOGDANOV, Ye.S.; KRECHETOV, I.V.; BAGDAT'YEV, Ye.Ye.; MARATSUTS, L.S.

Results of comparative testing of automatic systems for the drying of wood. Der. prom. 14 no. 12:3-4 D '65. (MIRA 18:12)

KALANDADZE, L.P.; BAGDAVADZE, A.I.

Biological peculiarities of the cherry fruit fly Rhagoletis cerasi L. in the Georgian S.S.R. [with English summary in insert]. Zool.zhur. 35 no.8:1177-1185 Ag '56. (MLRA 9:10)

1.Kafedra zoologii i obshchey entomologii Gruzinskogo sel'skokhozyaystvennogo instituta.
(Georgia--Cherry fruit fly)

USSR / General and Special Zoology. Insects.

Abs Jour: Ref Zhur-Biol., No 4, 1958, 16396

Author : Batiashvili I.D., Bagdavadze A.I.
Inst : Georgian Agricultural Institute.
Title : On the Study of the Grass Family Flies and Methods of their Control in Eastern Georgia. (Kizucheniyu zladkovykj mukh i mer bor'by protiv nikh v usloviyakh Vostochnoi Gruzii)

Orig Pub: Tr. Gruz.s.-kh. in-ta, 1955,42-43, 327-358

Abstract: Twelve species of injurious flies of the grass family were shown to exist: the greeneyed, swedish, barley, hessen, germination fly, winter fly, meromyza, Elachiptera cornuta, Basiosima cinctepes, Phytomyza atricornis, Dizogomyza lateralis, Agromyza cinerascens. The first four species were very important economically; the last four were recorded for the first time in Georgia. The

Card 1/2

USSR / General and Special Zoology. Insects. Harmful Insects and Mites. Fruit and Berry Crop Pests. P

Abs Jour: Ref Zhur-Biol., No 1, 1959, 2329.

Author : Kalandadze, L. P.; Bagdavadze, A. I.
Inst : Institute for Plant Protection, AS Georgian SSR.
Title : Results of the Study of Biological Features of the Cherry Fruit-Fly (Rhagoletis cerasi L.) and Methods for its Control in Georgia.

Orig Pub: Tr. In-ta zashchity rast. AN GruzSSR, 1957, 12, 49-77.

Abstract: The fly develops in sour and sweet cherry fruits. It seldom damages the barberry berries and is not found in honeysuckle berries. The damage to wild cherry varieties reaches 67.3-92% and to cherry varieties 48-85%. It has a one-year

Card 1/3

USSR / General and Special Zoology. Insects. Harmful Insects and Mites. Fruit and Berry Crop Pests. P

Abs Jour: Ref Zhur-Biol., No 1, 1959, 2329.

Abstract: of sweet cherry and sour cherry trees, prohibiting the planting of wild, sweet cherry and and barberry trees (possibly honeysuckle too) close to them; treatment of the ground under the crowns to a 15-20 cm depth; gathering of the crop a few days before the usual harvest; destruction of the larvae on a canvas or cement floor as they emerge from the fruit; dusting twice with DDT and hexachlorocyclohexane, 20-35 kg/ha (prior to egg-laying and in 10-14 days): dusting with 80 kg/ha of hexachlorocyclohexane under the crowns at the beginning of the withdrawal of the larvae into the ground. -- A. P. Adrianov.

Card 3/3

BAGDAVADZE, A.I.

Study of the leaf miner Lithocolletic blancardella F., a pest of fruit crops in eastern Georgia. Zool. zhur. 42 no.9:1412-1413 '63. (MIRA 16:12)

1. Department of Agricultural Entomology, Georgian Agricultural Institute, Tbilisi.

TAVADZE, F.N.; TSKITISHVILI, M.D.; BAGDAVADZE, D.I.

Effect of additions of nitrogen, boron and carbon on the heat resistance of chromium-nickel alloys (with 10% of nickel). Trudy Inst. met. AN Gruz. SSR vol. 13:57-63 '62. (MIRA 17:9)

ACCESSION NR: AR4027683 S/0276/64/000/001/G009/G009

SOURCE: RZh. Tekhnologiya mashinostroyeniya, Abs. 1G66

AUTHOR: Tavadze, F. N.; Tskitishvili, M. D.; Bagdavadze, D. I.

TITLE: The effect of additions of nitrogen, boron, and carbon on the heat resistance of chromium-nickel alloys (with 10% nickel)

CITED SOURCE: Tr. In-ta metallurgii. AN GruzSSR, v. 13, 1962(1963), 57-63

TOPIC TAGS: heat-resistant alloy, chromium-nickel alloy, alloy additive

TRANSLATION: The addition of up to 0.5% nitrogen noticeably increases heat resistance. Increasing the nitrogen content in alloys is desirably, but limited due to the complication of sample smelting technology. The addition of boron up to its solubility limit gives even better results. The addition of boron with the separation of the excess phases decreases heat resistance. The addition of up to 0.25% carbon increases heat resistance by an insignificant amount. Increasing the carbon content to 0.5% results in a sharp deterioration of heat resistance due to the separation of the unstable carbides.

Card 1/1

L 39970-66 EWT(m)/EWP(k)/EWP(t)/ETI IJP(c) JD/WW/JG/JH

ACC NR: AP6021712 SOURCE CODE: UR/0251/66/041/003/0657/0664

53
52
B

AUTHOR: Gvelesiani, G. G.; Bagdavadze, D. I.

ORG: Georgian Institute of Metallurgy (Gruzinskiy institut metallurgii)

TITLE: Thermal reduction of samarium oxides by lanthanum

SOURCE: AN GruzSSR. Soobshcheniya, v. 41, no. 3, 1966, 657-664

TOPIC TAGS: samarium compound, lanthanum, powder metallurgy, chemical kinetics

ABSTRACT: A method for the thermal reduction of samarium oxide powder by lanthanum in a vacuum is described. Briquets (15 × 3 × 3 mm) were pressed from powder mixtures of B-Sm_2O_3 and La of 99.5% purity and reduced in vacuo by heating to 1200°C. The equilibrium partial pressure of Sm vapor and the isobaric-isothermal potential were given as functions of temperature by the following equations:

$$\lg P_{MM} = 8.21 - \frac{11250}{T} \quad (1225\text{-}1473^\circ K)$$

and

$$\Delta Z^\circ_T = 102940 - 48.77T \quad (1225\text{-}1473^\circ K).$$

The evaporation of Sm limited the speed of the process in the early stages, while diffusion of the reactants through the solid reactant product La_2O_3 limited the speed in

Card 1/2

ACC NR: AP6021712

the latter stages. By examining the Sm yield as a function of the molar ratio La/Sm_2O_3, the optimum charge was determined to be $La/Sm_2O_3 = 2.75$, for which the Sm yield was between 93 and 66% at 1200°C. The following optimum process conditions are: temperature--1200°C, reduction time--1 hr, briquetting pressure--2500 kg/cm^2, sizes of Sm_2O_3 and Ln powders--1 + 0.5 mm and vacuum pressure--10^{-3} mm Hg. Wettability of the oxide particles by Ln was considered best at 1200°C. The overall reduction equation was given as $Sm_2O_{3(solid)} + 2La_{(liquid)} \rightarrow 2Sm_{(gas)} + La_2O_{3(solid)}$. Orig. art. has: 8 figures, 1 table, 7 equations.

SUB CODE: 07,11/ SUBM DATE: 05Jul65/ ORIG REF: 003/ OTH REF: 003

Card 2/2 pb

ACC NR: AP6028031 SOURCE CODE: UR/0251/66/042/001/0151/0158

AUTHORS: Gvelesiani, G. G.; Bagdavadze, D. I.

ORG: Georgian Institute of Metallurgy (Gruzinskiy institut metallurgii)

TITLE: Cerimetric reduction of samarium oxide

SOURCE: AN GruzSSR. Soobshcheniya, v. 42, no. 1, 1966, 151-158

TOPIC TAGS: cerium, chemical reaction kinetics, chemical reduction, samarium compound, vacuum furnace

ABSTRACT: Kinetics of the cerimetric reduction of Sm_2O_3 has been investigated. Effects of the ratio Ce/Sm_2O_3, of the temperature and duration of the reaction, of the size of the cerium granules, and the pelleting temperature upon the yield of samarium were studied, and the results are illustrated by corresponding graphs. The reaction was conducted in a high temperature vacuum setup fitted with an automatic recorder by which the reduction could be followed according to the method described by G. G. Gvelesiani, N. P. Mgaloblishvili, and A. A. Nadiradze (Vysokotemperaturnyye ustanovki dlya issledovaniya vakuumtermicheskikh vosstanovleniy. Trudy Gruzinskogo in-ta metallurgii, No. 14, 1965, 199). It was established that the reduction process can be described by

$$Sm_2O_{3\,solid} + 2\,Ce_{liquid} \rightarrow 2\,Sm_{gas} + Ce_2O_{3\,solid}$$

Card 1/2

ACC NR: AP6028031

The optimal reaction conditions are: Ce/Sm_2O_3 = 2.75; 1200C; 1 hour; vacuum $\sim 10^{-3}$ mm Hg; pelleting pressure 2500 kg/cm^2; size of cerium granules 1+0.5 mm. This paper was presented by Academician F. N. Tavadze on 5 July 1965. Orig. art. has: 1 table, 7 figures, and 4 equations.

SUB CODE: 07/ SUBM DATE: 07Apr65/ ORIG REF: 004

Card 2/2

BAGDAVADZE, N.V.; BARBAKADZE, L.V.; GINTURI, E.N.; KUCHAVA, N.Ye.; MOSULISHVILI, L.M.; KHARABADZE, N.Ye.

Radioactivation method for determining gold in the blood. Soob. AN Gruz. SSR 39 no.2:287-294 Ag '65. (MIRA 18:9)

1. Institut fiziki AN GruzSSR. Submitted January 15, 1965.

MAGDAVAYEV, V.A.

Using the probability method in determining the magnitude and regularity of the distribution of seismic inertia loading over the height of the edifice. Soob. AN Gruz. SSR 35 no.1:141-146 Jl '64. (MIRA 17:10)

1. Institut stroitel'noy mekhaniki i seysmostoykosti AN GruzSSR. Predstavlena akademikom K.S. Zavriyevym.

BAGDAVADZE, V.A.

Determination of the dynamic coefficient by the probability method taking into account only the frequency modulation of the seismic vibrations of the ground. Trudy Inst. stroi. mekh. i seism. AN Gruz. 10:205-209 '64. (MIRA 18:11)

BAGDAVADZE, V.A.

Taking into consideration the revolving motion of the ground in determining the seismic load. Trudy Inst. stroi.mekh. i seism. AN Gruz. SSR 9:233-239 '63. (MIRA 17:12)

BAGDAVADZE, V.A.

Using Fourier's integral in solving the equation of vibrations. Soob. AN Gruz. SSR 38 no. 3:595-598 Je '65. (MIRA 18:12)

1. Institut stroitel'noy mekhaniki i seysmostoykosti, Tbilisi, AN Gruzinskoy SSR. Submitted Oct. 1, 1964.

PETRE, H., corespondent; FERARU, I., corespondent; BARBALATA, St., corespondent; CRETU, Radu, corespondent; DIMA, Dumitru, corespondent; HARMOS, Gavril, corespondent; HOTUPAN, Florian, corespondent; BAGDAZAR, Aurel, corespondent

May 1st, the builders report to the party. Constr Buc 17 no.799:1,3 30 Ap '65.

616.921.5

RUMANIA

BRONITKI, A., BARBU, Cornelia, POPESCU, Ana, MOISA, I., MALIAN, A., BADESCU, Doina, and STEFANOV, I., of the Institute of Inframicrobiology (Institutul de Inframicrobiologie) of the Academy of the Socialist Republic of Rumania (al Academiei Republicii Socialiste Romania).

"Laboratory Investigations of the Influenza Epidemic of January-February 1966 in Bucharest."

Bucharest, Studii si Cercetari de Inframicrobiologie, Vol 17, No 5, 66, pp 365-370.

Abstract: During the epidemic, the authors isolated 14 strains of type B influenza viruses. In an analysis of 200 human sera during the pre-epidemic period an approximately equal percentage of anti-A_2 and anti-B antibodies was found, while during the epidemic there was a percentage decline of positive A_2 reactions and a marked increase in the percentage of anti-B_2 antibodies. Includes 2 tables and 5 references, of which 3 Rumanian and 2 English-language. -- Manuscript submitted 4 June 1966.

1/1

BAGDI, Oscar (Cluj)

Trigonometric products. Gaz mat b 14 no.1:19-22 Ja '63.

ALEKSANDRAVICIUTE, B.; APALIA, Dz.; BRUNDZA, K.; BAGDONAITE, A.; CIBIRAS, L.; JANKEVICIENE, R.; LEKAVICIUS, A.; LUKAITIENE, M.; LISAITE, B.; MARCINKEVICIENE, J.; NAVASAITIS, A.; PIPINYS, J.; SNARSKIS, P.; STANCEVICIUS, A.; SARKINIENE, I.; MIKEVICIUS,A., glav. red.; JANKEVICIUS, K., otv. red.; NATKEVICAITE-IVANAUSKIENE,M., red.; DAGYS, J., red.; ZIEMYTE, E., red.; ANAITIS, J., tekhn. red.

[Flora of the Lithuanian S.S.R.] Lietuvos TSR flora. Red. M.Natkevicaite-Ivanauskiene. Vilnius, Valstybine politines ir mokslines literaturos leidykla. Vol.3. 1961. 661 p. (MIRA 15:3)

1. Lietuvos TSR Mokslu akademija. Vilna, Botanikos institutas. (Lithuania--Botany)

BAGDONAITE, A.; GALINIS, V.; JANKEVICIENE, R.; LEKAVICIUS, A.; NATKEVICAITE-IVANAUSKIENE, M.; PIPINYS, J.; PURVINAS, E.; RIBOKAITE, R.; SNARSKIS, P.; STANCEVICIUS, A.; SARKINIENE, I.; ZIEMYTE, E., red.; ANAITIS, J., tekhn. red.

[Flora of the Lithuanian S.S.R.] Lietuvos TSR flora. Autoriu kolektyvas: A. Bagdonaite ir kiti. Vilnius, Valstybine politines ir mokslines literaturos leidykla. Vol.2. 1963. 714 p. (MIRA 16:9)

1. Lietuvos TSR Mokslu Akademija, Vilna. Botanikos institutas. (Lithuania--Angiosperms)

BAGDONAYTE, A. I.

BAGDONAYTE, A. I. - "The vegetation of the meadows along the lower course of the River Nemunas in connection with the ecological analysis of the river terrace". Vil'nyus, 1955. Acad Sci Lithuanian SSR, Inst of Biology. (Dissertation for the Degree of Candidate of Biological Science.)

SO: Knizhnaya Letopis', No. 43, 22 October 1955. Moscow

BAGDONAYTE, R.R.

Hydrogenases of the pentophosphate cycle in the heart of rats with hyperthyroidism. Vest. LGU 20 no.3:138-141 '65.
(MIRA 18:2)

USSR / Problems of Pathology. Immunity. U

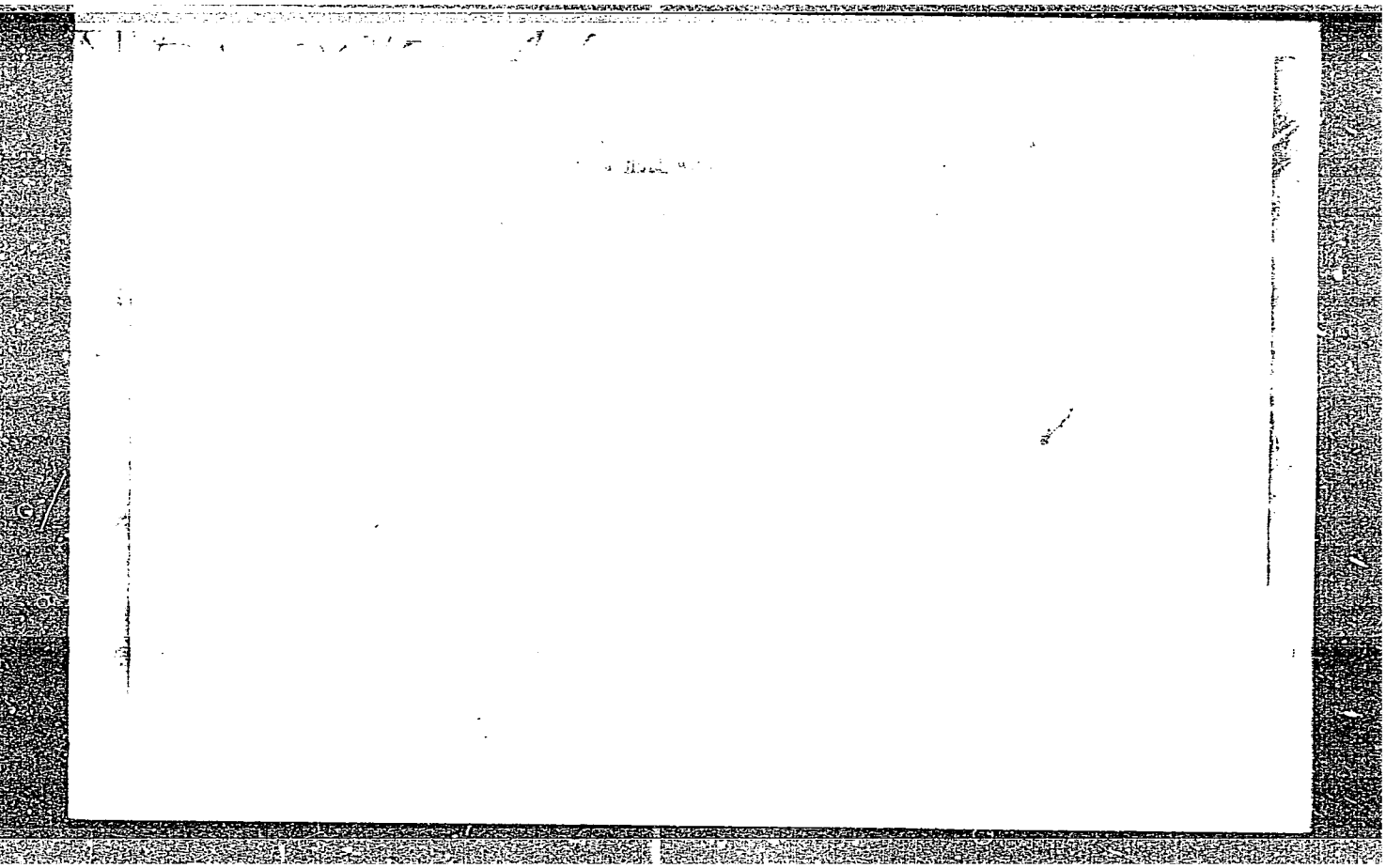
Abs Jour: Ref Zhur-Biol., No 11, 1958, 51480.

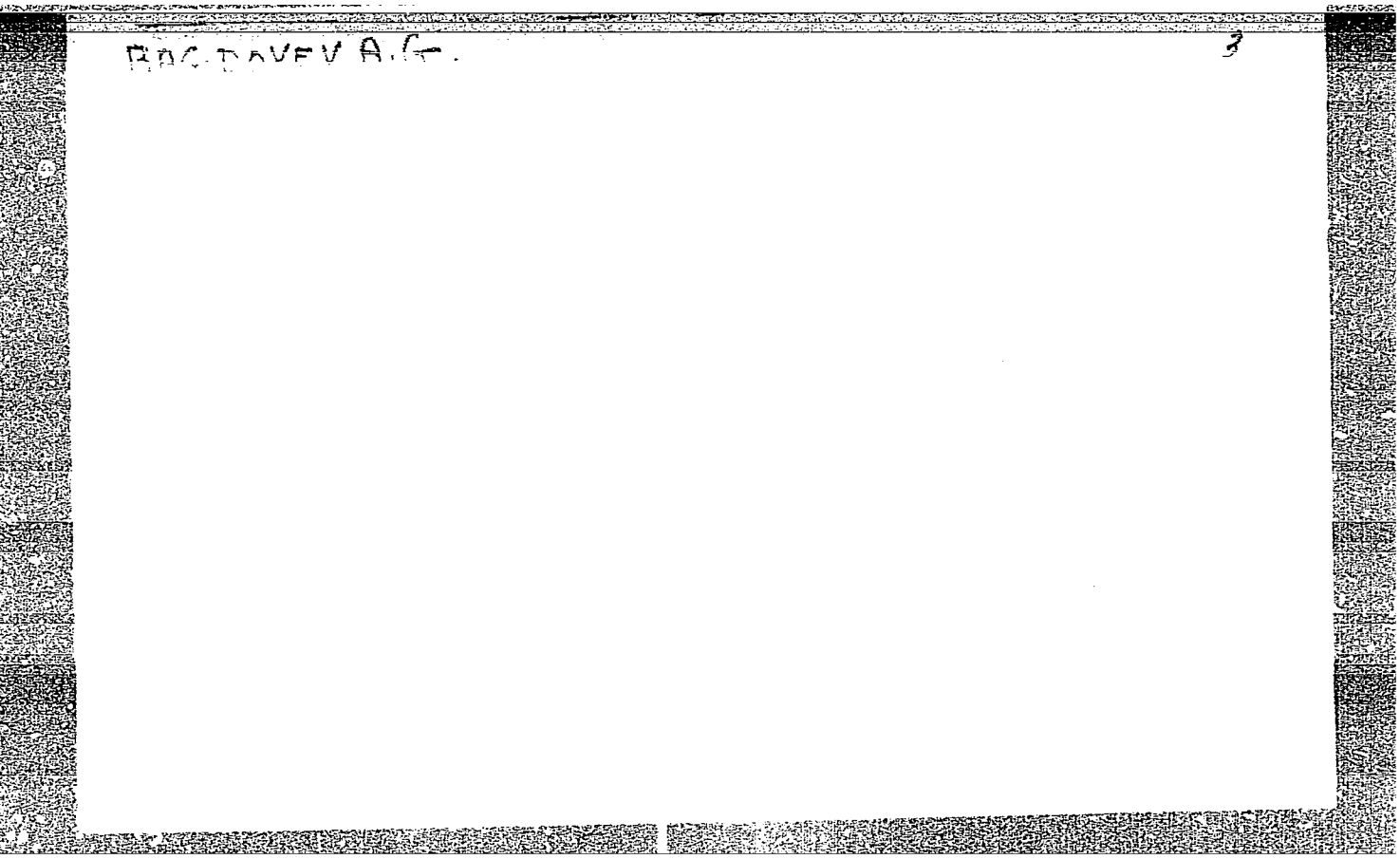
Author : Bagdoniene, V.
Inst : Not given.
Title : Normal Agglutinins of Immunized Rabbits and Their Relation to the Specificity of Obtained Agglutinizing Sera.

Orig Pub: Sveikatos apsauga. 1957, No 8, 9-11.

Abstract: Rabbits were immunized with the following dysentery antigens: Grigoriev-Shiga, Shtuzer-Shmitz, Flexner or Sonna. Sera, containing more specific agglutinins, were obtained from rabbits with the smallest titers of normal agglutinins. -- From the author's abstract.

Card 1/1





BAGDOYEV, A.G.

Penetration of pressure into a compressible liquid. Vest. Mosk. un. Ser. mat. mekh., astron., fiz., khim. 11 no.2:19-26 '56.(MIRA 10:12)

1. Kafedra volnovoy i gazovoy dinamiki Moskovskogo gosudarstvennogo universiteta.
(Fluid mechanics) (Differential equations)

BAGDOYEV, A.G.

Penetration of pressure inside a compressible heterogeneous liquid. Vest.Mosk.un.Ser.mat.,mekh., astron.,fiz.,khim. 12 no.2:45-50 '57. (MIRA 10:12)

1.Kafedra volnovoy dinamiki Moskovskogo universiteta.
(Fluid mechanics)

BAGDOYEV, A.G.

Penetration of pressure into a compressible liquid. Vest.Mosk.un. Ser.mat., mekh., astron., fiz., khim. 12 no.3 '57. (MIRA 11:3)

1.Kafedra volnovoy dinamiki Moskovskogo gosudarstvennogo universiteta.
(Fluid mechanics) (Shock waves)

BAGDOYEV, A.G.

Penetration of a thin, sharp, spinning body into heterogeneous layered fluid. Vest. Mosk. un.Ser.mat.mekh. astron. fiz. khim., 12 no.4:45-48 '57. (MIRA 11:5)

1.Kafedra volnovoy dinamiki Moskovskogo gosudarstvennogo universiteta.
(Wave mechanics)

BAGDOYEV, A.G., Cand Phys-Math Sci--(diss) "Cetain non-~~fixed~~ stationary problems of the ~~spreading~~ diffraction of waves in semispace." Mos, 1958. 5 pp (Min) Order of Lenin and Order of Labor Red Banner State U im I.V.Lomonosov. Mechan-Math Faculty), 150 copies. Bibliography: p 5 (15 titles) (KL,49-58, 119)

10(2)

AUTHOR: Bagdoyev, A.G.

SOV/55-58-2-4/35

TITLE: A Method of Solution for the Equation of Motion of a Cone (O metode resheniya uravneniya dvizheniya konusa)

PERIODICAL: Vestnik Moskovskogo Universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 2, pp 29-32 (USSR)

ABSTRACT: The author considers a small cone which vertically falls with the apex upon the free liquid surface with the velocity V_o. It is assumed that $V_o < a$, where a is the velocity of sound in the liquid. The equation of motion is

$$(1) \qquad m f''(t) = -\pi\beta^4 \rho_o \left[\int_o^{f(t)} (p-p_o)_k (f-z)dz \right],$$

where 2β the aperture angle of the cone, $f(t)$ the depth of penetration of the apex of the cone into the liquid, ρ_o the density, m the mass of the cone, $(p-p_o)_k$ was determined by the author in [Ref 2]. The solution of (1) is sought as a series in $M = \frac{V_o}{a}$, whereby the solution in the incompressible

Card 1/2

case serves as the zeroth term. Two approximations are thus obtained. The values of f"(t) for compressible and incompressible liquids differ by less than 10%. Some calculations for this paper have been barried out by the student Ye.P. Bardin.
There are 1 figure, 1 table, and 2 Soviet references.

ASSOCIATION: Kafedra volnovoy dinamiki (Chair of Wave Dynamics) [Moscow Univ.]
SUBMITTED: May 10, 1957

69781
S055/59/000/06/04/027

16.7600

AUTHOR: Bagdoyev, A.G.

TITLE: Propagation of the Pressure in an Inhomogeneous Fluid

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1959, No.6, pp. 43-50.

TEXT: The author considers the propagation of the pressure given at the surface, in the depth of an inhomogeneous compressible ideal fluid in which the sound velocity is variable with the depth. If for the density in the resting fluid it is put $\rho_0(z) = \rho_a e^{kz}$, if the sound velocity is denoted with $a(z)$ and the pressure with $P(x,z,t)$, then one obtains for $p(x,z,t) = e^{k\frac{z}{2}} P(x,z,t)$ the equation

$$(1.1) \qquad \frac{\partial^2 p}{\partial t^2} - a^2(z)\frac{\partial^2 p}{\partial x^2} - a^2(z)\frac{\partial^2 p}{\partial z^2} - \frac{k^2}{4}a^2(z)p = 0.$$

The author investigates the boundaries of the region of disturbance appearing by the pressure (two cases: subsonic velocity and supersonic velocity of the propagation), he determines the solution of (1.1) according

Card 1/2

69781

Propagation of the Pressure in an Inhomogeneous Fluid S/055/59/000/06/04/027

to the method of Hadamard (Ref.1), he discusses in brief the results and finally he considers the special case of a homogeneous fluid.
The author mentions S.L.Sobolev, Member of the Academy.
There are 3 figures and 6 references: 4 Soviet, 1 French and 1 American.

ASSOCIATION: Kafedra volnovoy i gazovoy dinamiki (Department of Waves and Gas Dynamics)

SUBMITTED: April 30, 1958

Card 2/2

RAGDOYEV, A.G.

Distribution of pressure in an elastic semispace. Dokl. AN Arm. SSR 28 no.2:49-52 '59. (MIRA 12:6)

1.Moskovskiy gosudarstvennyy universitet im. Lomonosova. Predstavlene chlenom-korrespondentom AN ArmSSR S.A. Ambartsumyanom.
(Pressure) (Elasticity)

31282
S/124/61/000/010/014/056
D251/D301

10.1410
26.2114

AUTHOR: Bagdoyev, A.G.

TITLE: A new method of determining the pressure in a fluid

PERIODICAL: Referativnyy zhurnal. Mekhanika, no. 10, 1961, 30, abstract 10 B166 (Aykakan SSR Gitutyunneri Akademiya, Zekuytsner, Dokl. AN ArmSSR, 1959, 29, no. 4, 153-157)

TEXT: The problem of transference on a surface of a compressed non-homogeneous fluid of the pressure created by a shock-wave in the linear case leads to integration of the wave equation for the pressure in the fluid with variation of the transmission velocity of the wave with respect to depth. The method depends on the integration of this equation, leading to the resolution of the variation of wave velocity with depth (coefficient in the wave equation) and the solution of the equation by a power series in the parameter characterizing the non-linearity. The recurrence problems

X

Card 1/2

A new method of determining...

for the region are solved by means of the Laplace transform with respect to time. [Abstracter's note: Complete translation]

Card 2/2

X

BAGDOYEV, A. G. (Yerevan)

"Determination of the Pressure Field in a Nonhomogeneous Fluid."

report presented at the First All-Union Congress on Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 1960.

S/055/60/000/01/05/009

AUTHORS: Bagdoyev, A.G., and Arutyunyan, A.A.

TITLE: The Propagation of a Shock Wave in the Depth of a Compressible Fluid

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya I, matematika, mekhanika, 1960, No.1, pp.37-42

TEXT: The authors consider the propagation of a shock wave arising during a point explosion on the free surface of a compressible fluid, in the deoth of the fluid. As dimensionless variables of the disturbed motion there serve $\xi = C\frac{x}{t^\alpha}$, $\eta = C\frac{y}{t^\alpha}$, where $\alpha = \frac{2}{5}$, $C = \left(\frac{\rho_0}{E}\right)^{1/5}$, ρ_0- density of the atmosphere and E is proportional to the energy which became free during the explosion. In dimensionless form the authors write the motion equations, the equations of continuity and the adiabatic equations, and they calculate the equations of the three families of characteristics in the (ξ, η)-plane. Together with the boundary conditions there results a system of relations which enables to calculate the parameter of flow. A numerical example is given. The authors mention A.Ya.Sagomonyan. There

Card 1/2

The Propagation of a Shock Wave in the Depth of a Compressible Fluid S/055/60/000/01/05/009

is 1 figure, 1 table, and 4 references: 3 Soviet and 1 American.

ASSOCIATION: Kafedra volnovoy i gazovoy dinamiki (Department of Wave and Gas Dynamics)

SUBMITTED: May 12, 1958

Card 2/2

17.4210
10.6121
10.2000

83303
S/179/60/000/004/001/027
E031/E135

AUTHORS: Bagdoyev, A.G., and Nersisyan, E.M. (Yerevan)

TITLE: The Determination of the Pressure in a Half-Space for an Ideal Liquid in the Isentropic Approximation

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1960, No 4, pp 3-6

TEXT: The problem is considered of the pressure distribution in a compressible ideal fluid, assuming isentropic motion. For the case of supersonic automodel propagation along the flow boundary of the fluid, there is assumed to be a simple wave behind the shock wave front. With this assumption the shock wave and the pressure on it are determined. The same result is obtained by geometrical consideration of the expansion waves arising at the boundary of the fluid. The pressure distribution on the shock wave is obtained for the subsonic case. Since the flow is isentropic, an approximate boundary condition for the velocity of sound in the liquid can be obtained with the aid of the polytropic equation of state of the fluid. Coordinates ξ and η defined by the equations $\xi = x_1/t$ and $\eta = x_2/t$, where x_1 is measured along the surface of the

Card 1/3

83303
S/179/60/000/004/001/027
E031/E135

The Determination of the Pressure in a Half-Space for an Ideal Liquid in the Isentropic Approximation

half-plane and x_2 is measured into the liquid and t is the time, are introduced, and in terms of these the equation of level surfaces is written. This equation contains an unknown function of the velocity of sound, which can be determined with the aid of the boundary condition. For simplicity we take a linear condition $a_1(\xi) = A\xi$ and neglect the term expressing the particle velocity in the equation for the level surfaces. In order to determine the shock lines in the fluid an equation for the velocity of the shock wave is written and use made of a relation which holds between ξ and η on the shock wave. A simplification is achieved by assuming the velocity to be very much greater than the undisturbed velocity of sound. The solution of the resulting differential equation is given. The same problem is now considered by a geometrical method. Riemann waves are considered as an elementary disturbance on the surface. The same coordinate transformation is introduced and if the equation of the envelope of the waves having a given pressure or a given ξ is written it is easy to obtain an expression which by suitable approximation, and with the same boundary condition as

Card 2/3

83303
S/179/60/000/004/001/027
E031/E135

The Determination of the Pressure in a Half-Space for an Ideal Liquid in the Isentropic Approximation

was mentioned above, leads to the same equation for the level surfaces. In either case, the pressure is determined from the approximate boundary condition for the velocity of sound. Finally the case of subsonic propagation is considered. The equation of motion of the initial spherical or cylindrical shock front can be obtained by considering the expansion of a spherical or cylindrical cavity with constant velocity in an unbounded fluid. The pressure on the front is constant and can be determined by known methods.

There are 2 figures and 4 Soviet references.

ASSOCIATION: Institut matematiki i mekhaniki AN Arm. SSR
(Institute of Mathematics and Mechanics, Acad.Sci. Armenian SSR)

SUBMITTED: February 13 1960

Card 3/3

BAGDOYEV, A.G. (Yerevan)

Propagation of pressure into a two-component medium. Izv.AN SSSR. Otd.tekh.nauk.Mekh.i mashinostr. no.5:28-32 S-O '60. (MIRA 13:9)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR.
(Shock waves)

86200

S/055/60/000/005/006/010
C111/C222

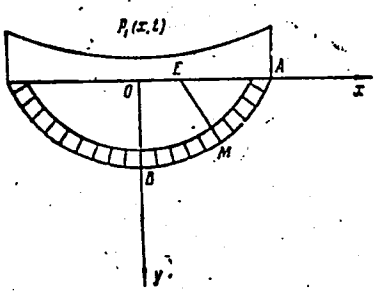
10.6121
16.7100

AUTHOR: Bagdoyev, A.G.

TITLE: Determination of the Pressure at the Front of the Shock Wave in the Halfspace

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya I, matematika, mekhanika, 1960, No.5, pp.49-51

TEXT: The author considers the propagation of a pressure originating in O (cf. figure)



Card 1/4

Determination of the Pressure at the Front of the Shock Wave in the Halfspace

into the lower halfspace which is filled with a compressible fluid. The equation of state of the fluid is assumed to be polytropic:

(1) $P = B(S)(\rho^{\gamma} - \rho_0^{\gamma})$,

where ρ and P are the density and the pressure, and S is the entropy. Furthermore it is assumed that the surface pressure decreases quickly with the time so that the main part of the pressure in the disturbed fluid is concentrated within a small strip (marked by a dotted line) at the shock wave..

According to K.Ye.Gubkin (Ref.1) on ME it holds

(2) $P = \alpha P_{ak}$,

where α is determined from the pressure value in E while

(3) $$P_{ak} = \frac{\alpha_0}{L(t)} = \frac{\sqrt{-R_0'^3(t_0)\sin^2\theta}}{L(t)}.$$

Card 2/4

Determination of the Pressure at the Front of the Shock Wave in the Halfspace

(cf.(Ref.2)), where $L(t) = \sqrt{a_0^2 R''(t_0)(t-t_0) - R'^3(t_0)\sin^2\theta}$, $\cos\theta = \frac{a_0}{R'(t_0)}$, a_0-velocity of sound in the undisturbed medium, $x = R(t)$ - coordinate of the front on the surface, t - time, and t_0 is determined from

(4) $$t_0 = t - \frac{1}{a_0}\sqrt{[x-R(t_0)]^2+y^2}.$$

Combining the results of (Ref.1) and (Ref.2) the author obtains the expression

(10) $$P = P_1[R(t'),\zeta]\frac{L(\zeta)}{L(t)}$$

for the pressure in M, where

(7) $$P_1[R(t'),\zeta] = \frac{\alpha a_0}{L(\zeta)}$$

is the boundary condition of (Ref.2), and ζ must be determined from

Card 3/4

Determination of the Pressure at the Front of the Shock Wave in the Halfspace

$$(12)\quad \frac{1}{\rho_0 a_0} L^2(\tau)\left\{P_1[R(t'),\tau]\right\} 2\int_{R(t')}^{x} \frac{1}{\sqrt{\frac{x-R(t_0)}{\cos\theta}a_0 R''(t_0)-R'^3(t_0)\sin^2\theta}} \frac{dx}{\cos\theta} =$$

$$\frac{4}{\gamma+1}\int_{\tau}^{t'} P_1[R(t'),\ tL(t)f'(t)dt\ ;$$

t' is the moment of the passage of the front of the shock wave through E and is obtained from $\tau=t$.
There is 1 figure and 2 Soviet references.
[Abstracter's note: (Ref.1) is a paper of K.Ye.Gubkin in Prikladnaya matematika i mekhanika, 1958, Vol.22, No.4; (Ref.2) is a paper of the author in Doklady Akademii nauk Arm,SSR, 1959, Vol.28, No.2]

ASSOCIATION: Institut matematiki i mekhaniki AN ArmSSR (Institute of Mathematics and Mechanics at the Academy of Sciences Armyanskaya SSR)

SUBMITTED: July 7, 1959

Card 4/4

S/022/60/013/01/05/010
C 111/ C 333

AUTHOR: Bagdoyev, A. G.,

TITLE: Propagation of Pressure in an Inhomogeneous Fluid

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya fiziko-matematicheskikh nauk, 1960, Vol. 13, No. 1, pp. 99-110

TEXT: The author considers the propagation of a pressure acting on the surface of a fluid into the depth of the fluid. He distinguishes two cases: § 1 The case of an inhomogeneous fluid, § 2 the case of a laminated fluid. The author essentially uses the results of his dissertation (Ref.3) and the formulas of S. L. Sobolev (Ref.2) for the solution of the wave equation. He gives explicit expressions for the propagating pressure. As a special case a result of A. Ya. Sagomonyan (Ref.6) is obtained.
There are 2 figures, and 6 Soviet references.

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute of Mathematics and Mechanics AS Armyanskaya SSR)

SUBMITTED: May 22, 1959

Card 1/1

S/044/62/000/007/036/100
C111/C222

AUTHOR: Bagdoyev, A.G.

TITLE: The propagation of pressure in an inhomogeneous liquid

PERIODICAL: Referativnyy zhurnal, Matematika, no. 7, 1962, 65, abstract 7B307. ("Izv. AN Arm SSR. Ser. fiz.-matem. n.", 1960, 13, no. 1, 99-110)

TEXT: The author considers the propagation of pressure into the depth of a half plane which is filled with an inhomogeneous compressible liquid. The main result of the author is the determination of the pressure distribution along the front wave for an arbitrary and laminated liquid in the plane and axialsymmetric case.

[Abstracter's note : Complete translation.]

Card 1/1

85240
S/022/60/013/002/011/011 XX
C111/C222

16.7300

AUTHOR: Bagdoyev, A.G.

TITLE: Determination of the Pressure Within an Inhomogeneous Elastic Halfspace

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya fiziko-matematicheskikh nauk, 1960, Vol. 13, No. 2, pp. 105 - 108

TEXT: Let the lower halfspace ($z > 0$) be filled with an elastic inhomogeneous medium. Let the motion of the medium be axialsymmetric. Let the x-axis be the boundary of the halfspace. Let in a point 0 of the x-axis arise a pressure which then propagates symmetrically according to an arbitrary law. Let $a(z)$, $b(z)$ and $\rho(z)$ be the velocities of the longitudinal and transverse waves and the density of the medium

$$a^2(z) = \frac{\lambda(z) + 2\mu(z)}{\rho(z)}, \quad b^2(z) = \frac{\mu(z)}{\rho(z)}.$$

For $z = 0$ the tension tensor satisfies the conditions

Card 1/5

Determination of the Pressure Within an Inhomogeneous Elastic Halfspace

S/022/60/013/002/011/011 XX
C111/C222

(1) $$\sigma_z = \begin{cases} p_1(x,t) & x < R(t) \\ 0 & x > R(t) \end{cases}, \quad \tau_{rz} = 0 ,$$

where $R(t)$ is the radius of the front of pressure on the surface, $p_1(x,t)$ is the pressure behind this front. The author considers the supersonic fall $R'(t) > a(z)$. With the aid of the relations given in (Ref. 1) the author calculates :

$$\frac{\sigma_z}{p_1} = -\sqrt{\frac{\rho(z)}{\rho(0)}} \left\{ \frac{\left[\frac{1}{b^2(0)} - 2\frac{1}{v^2}\right]\left[\frac{a^2(z)}{a^2(0)} - 2b^2(z)\frac{1}{v^2}\right]\frac{1}{b^2(0)}}{\left[\frac{1}{b^2(0)} - 2\frac{1}{v^2}\right]^2 + 4\frac{1}{v^2}\sqrt{\frac{1}{a^2(0)} - \frac{1}{v^2}}\sqrt{\frac{1}{b^2(0)} - \frac{1}{v^2}}} \right\} \cdot \sqrt{\frac{R\, t_0(\theta_1)}{x}} \sqrt{\frac{1}{K_1}}$$

Card 2/5

Determination of the Pressure Within an Inhomogeneous Elastic Halfspace

S/022/60/013/002/011/011 XX
C111/C222

$$\frac{\tau_{rz}}{p_1} = \frac{-2\sqrt{\frac{\varsigma(z)}{\varsigma(0)}}\frac{b^2(z)}{b^2(0)}\frac{1}{v}\left[2\frac{1}{v^2}-\frac{1}{b^2(0)}\right]\sqrt{\frac{1}{a^2(0)}-\frac{1}{v^2}}}{\left[\frac{1}{b^2(0)}-2\frac{1}{v^2}\right]+4\frac{1}{v^2}\sqrt{\frac{1}{a^2(0)}-\frac{1}{v^2}}\sqrt{\frac{1}{b^2(0)}-\frac{1}{v^2}}} \cdot \sqrt{\frac{R\left[t_o(\theta_1)\right]}{x}}\sqrt{\frac{1}{K_1}} ,$$

where $\theta_{1,2}$ is the exit angle of the longitudinal- and transverse ray with the x-axis in the moment $t = t_o(\theta_1) = t_o(\theta_2)$ of the front passage through the

Card 3/5

85240

Determination of the Pressure Within an Inhomogeneous Elastic Halfspace

S/022/60/013/002/011/011 XX
C111/C222

boundary $C_1(z) = a(z)$, $C_2(z) = b(z)$, $\lambda_{1,2} = \frac{\cos\theta_{1,2}}{C_{1,2}(\theta)} = \frac{1}{R'[t_0(\theta_1)]} = \frac{1}{v}$ and

$$(5)\ K_{1,2} = \sqrt{4\frac{\frac{1}{C_{1,2}^2(0)} - \lambda_{1,2}^2}{\frac{1}{C_{1,2}^2(z)} - \lambda_{1,2}^2}} \sqrt{\frac{\frac{v^3}{R''[t_0(\theta_1)]}}{\frac{v^3}{R''[t_0(\theta_1)]} - \int_0^z \frac{dz}{C_{1,2}^2(z)\left[\frac{1}{C_{1,2}^2(z)} - \lambda_{1,2}^2\right]^{3/2}}}}$$

There is 1 Soviet reference.

[Abstracter's note : (Ref. 1) concerns a paper of G.A. Skuridin and A.A.

Card 4/5

85240

Determination of the Pressure Within an Inhomogeneous Elastic Halfspace

S/022/60/013/002/011/011 XX
C111/C222

Gvozdev in Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1958, No.2]

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute of Mathematics and Mechanics of the Academy of Sciences Armyanskaya SSR)

SUBMITTED: October 20, 1959

Card 5/5

10.6121

S/022/60/013/002/003/007
C 111/ C 333

AUTHORS: Bagdoyev, A. G., Nersisyan, E. M.

TITLE: The Determination of the Pressure in the Front of a Shock Wave in the Half Space

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya fiziko-matematicheskikh nauk, 1960, Vol.13, No. 2, pp.109-113

TEXT: The authors consider the propagation of the pressure in a compressible fluid. The motion of the fluid is assumed as axial-symmetric. It is assumed that the equation of state of the fluid is polytropic. The considered problem has been already investigated in linear approximation in (Ref.2) by the authors. Now the subsequent approximation is considered, if the pressure acting on the surface decreases quickly with the time, so that the main part of the pressure in the disturbed fluid concentrates in a narrow strip around the front of the shock wave. Under essential use of the relations for ideal gases obtained in (Ref.1) the authors obtain improved expressions for the pressure in the front of the shock wave. By some numerical examples it is shown that the obtained non-linear additions increase with the time. The authors

Card 1/2

S/022/60/013/002/003/007
C 111/ C 333

The Determination of the Pressure in the Front of a Shock Wave in the Half Space

mention K. Ye. Gubkin.

There are 1 figure, 1 table, and 2 Soviet references.

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute of Mathematics and Mechanics, AS Armyanskaya SSR)

SUBMITTED: November 11, 1959

Card 2/2

S/022/60/013/003/003/006
C111/C222

10.6121

AUTHORS: Bagdoyev, A.G. and Nersisyan, E.M.

TITLE: The Determination of the Law for the Penetration of the Pressure Into a Compressible Fluid

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya fiziko-matematicheskikh nauk, 1960, Vol. 13, No. 3, pp. 97 - 105

TEXT: Under the assumption of an axialsymmetric motion of fluid, a polytropical equation of state and a surface pressure decreasing quickly in time, the author investigates the pressure distribution on the shock wave originated by the surface pressure. The determination of the pressure is performed in the neighborhood of the short waves, where a relation of K.Ye. Gubkin (Ref. 1) for ideal gases is used essentially. By this it becomes possible to use partially the author's earlier linear results (Ref. 2). The pressure in a point of the shock wave is given explicitly as a function of a parameter ζ, where $\zeta = \zeta(x,y,z)$ as a function of the local coordinates must be determined numerically from a series of complicated relations. The numerical calculation of an example with boundary values which correspond

Card 1/2

The Determination of the Law for the Penetration of the Pressure Into a Compressible Fluid

S/022/60/013/003/003/006
C111/C222

to the theory of point explosions of L.I. Sedov (Ref. 3) yields that for the performed nonlinear consideration the pressure is smaller by four times than in the acoustic approximation. In general the non-linear additions are unessential for small t ($\sim$ 0.01 sec) and essential for large t ($\sim$0.06 sec).

In the second part of the paper the author investigates in linear approximation the propagation of the pressure in an inhomogeneous two-component fluid. Then the pressure is the product of the pressure in the one-component case and of an exponential function.
There are 2 tables, 1 figure and 6 Soviet references.

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute of Mathematics and Mechanics of the Academy of Sciences Armyanskaya SSR)

SUBMITTED: December 30, 1959

Card 2/2

93619

S/022/60/013/004/002/004
C111/C222

10.6121

AUTHOR: Bagdoyev, A.G.

TITLE: Isentropic Problem for the Impact Pressure

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya fiziko-matematicheskikh nauk, 1960, Vol.13, No-4, pp.55-58.

TEXT: In the plane formulation the author considers the ingress of the pressure into a compressible fluid. The pressure originates in the point 0 of the x_1-axis (surface) and propagates on it as an impact wave. Let the equation of state of the fluid be polytropic, the motion be isentropic; let the pressure on the surface have supersonic velocity. Outside of the region of influence of the point 0 the flow is described as a simple wave (Ref.1), If $\xi = \frac{x_1}{t}$, $\eta = \frac{x_2}{t}$ $(x_2 \perp x_1)$, then, according to (Ref.1), the equation of the equipotential surfaces reads:

(6) $$\xi \cos\varphi + \eta \sin\varphi - a(\xi, \eta) = 0,$$

where a is the sound velocity. By use of linear boundary conditions

Card 1/2

16.7600

S/022/60/013/006/003/005
C 111/ C 333

AUTHOR: Bagdoyev, A. G.

TITLE: Penetration of the impact pressure into an incompressible fluid

PERIODICAL: Akademiya nauk Armyanskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, v. 13, no. 6. 1960, 37-40

TEXT: Let the x-axis lie in the undisturbed surface of the fluid, the y-axis is assumed to go downwards. Let a pressure arise in the origin O. The author chooses the nondimensional coordinates: $\xi = \frac{x}{Vt}$, $\eta = \frac{y}{Vt}$, where t--time, V--constant velocity of the pressure front. For the pressure p one has the boundary condition

$$p = \begin{cases} p_1 & |\xi| < 1 \\ 0 & |\xi| > 1 \end{cases} \qquad (1)$$

on the surface of the fluid $\eta = \eta(\xi)$. Since the nondimensional potential of the fluid $\bar{\varphi} = \frac{\varphi}{V^2 t}$ satisfies the Laplace equation, it holds

Card 1/7

Penetration of the impact . . .

$$-\xi\left\{\pi q(\xi)\frac{d\eta}{d\xi}-\frac{1}{2}\int_{-\infty}^{\infty}q(\xi')\,d\xi'\,\frac{1}{[(\xi'-\xi)^2+(\eta'-\eta)^2]}\,2(\xi-\xi')\right\}-$$

$$-\eta\left\{-\pi q(\xi)-\frac{1}{2}\int_{-\infty}^{\infty}q(\xi')\,d\xi'\,\frac{1}{[(\xi'-\xi)^2+(\eta'-\eta)^2]}\,2(\eta-\eta')\right\}+$$

$$+\frac{1}{2}\left\{\pi q(\xi)\frac{d\eta}{d\xi}-\frac{1}{2}\int_{-\infty}^{\infty}q(\xi')\,d\xi'\,\frac{1}{[(\xi'-\xi)^2+(\eta'-\eta)^2]}\,2(\xi-\xi')\right\}+$$

$$+\frac{1}{2}\left\{-\pi q(\xi)-\frac{1}{2}\int_{-\infty}^{\infty}q(\xi')\,d\xi'\,\frac{1}{[(\xi'-\xi)^2+(\eta'-\eta)^2]}\,2(\eta-\eta')\right\}^2=$$

$$=\begin{cases}\frac{p_1}{\rho V^2} & |\xi|<1,\\ 0 & |\xi|>1.\end{cases}\qquad(3)$$

Card 3/7

Penetration of the impact . . .

$$q = \begin{cases} \sum_{0}^{\infty} a_k |\xi|^k & |\xi| < 1 \\ \frac{b'_0}{|\xi|} + \sum_{0}^{\infty} \frac{b_k}{|\xi|^{k+2}} & |\xi| > 1 \end{cases} \qquad (5)$$

$b'_0 = 0$ follows from the convergence condition for integrals. Furthermore, since $\eta(\xi)$ and $q(\xi)$ are even, we have $a_1 = c_1 = 0$. If (5) is substituted in (3) and (4) if it is expanded into a Laurent series in $|\xi|$, and if the comparison of coefficients is carried out, then one obtains an infinite system of nonlinear equation. Especially, one obtains approximately

$$a_0^2 + a_2 \frac{1}{9} 2 + a_0 \left[- \ln(1+c_2^2) + 2 - 2 \frac{1}{c_2} \operatorname{arc\,tg} c_2 \right] -$$

$$- a_2 \frac{1}{2} \left[\frac{1}{3} \ln(1+c_2^2) - \frac{2}{c_2} \left(c_2^2 \frac{1}{3} - 1 + \frac{1}{c_2} \operatorname{arc\,tg} c_2 \right) \right] +$$

Card 5/ 7

20722

Penetration of the impact . . . S/022/60/013/006/003/005
C 111/ C 333

for the summand with zero power of $|\xi|$. The solution of (6) presents no difficulties.

There is 1 Soviet-bloc reference.

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute of Mathematics and Mechanics of the Academy of Sciences Armyanskaya SSR)

SUBMITTED: March 10, 1960

Card 7/7